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ABSTRACT

This report examines the ability of the nonpsychiatrist physician to provide mental health services in an effort to guide policymakers dealing with the question of whether nonpsychiatrist physicians can, or should, be used to offset the projected shortfall of psychiatrists. The maldistribution of psychiatrists is discussed in chapter 1 of this report. Chapter 2 describes the National Ambulatory Medical Care surveys conducted in 1980 and 1981 as the data source for this analysis, and explains the sample and procedures used to define mental health visits. Chapter 3 compares mental health office visits to psychiatrists and to nonpsychiatrist physicians along a variety of dimensions: diagnosis, reason for visit, patient demographics, geographic location, length of visit, etc. In chapter 4, multivariate techniques are used first to estimate the probability that a patient will see a psychiatrist, and then to estimate the probability that a psychotropic drug will be prescribed. Chapter 5 presents the conclusions that nonpsychiatrist physicians: (1) appear to be part of a hidden mental health network, providing services to patients who cannot or need not obtain specialized care; (2) seem to substitute drugs for time in their treatment of mental disorders; (3) are less likely than psychiatrists to prescribe combination drugs; and (4) are less likely than psychiatrists to order major tranquilizers or the more serious and potentially dangerous antidepressants. Policy implications are discussed. Fifteen data tables are included. (NB)

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The Hidden Mental Health Network

Provision of Mental Health Services by Non-Psychiatrist Physicians

March 1984

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
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Office of Data Analysis and Management

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FOREWORD

The Bureau of Health Professions has been conducting several studies related to the requirements, supply and geographic distribution of health professionals. One major area of investigation has been the content of care provided by physicians. In 1981 Health Economics Research, Inc., began a study of how the various physician specialties differ in terms of types of patients seen and services provided. This report presents an analysis of data on patients seen by psychiatrists and other physicians during 1980 and 1981. Other reports from this project will be made available in the near future.

This report is also the first of a series of reports dealing with the Bureau of Health Professions program to establish criteria for mental health manpower shortage areas. This project involves the documentation and assessment of the roles played by physicians, psychologists, nurses, and social workers in the Nation's mental health care system. The present report makes a contribution to the effort by presenting a comparison of the practices of psychiatrists with those of other physicians.

The report was prepared by Rachel Schurman, M.A., Janet B. Mitchell, Ph.D., and Peter D. Kramer, M.D. of Health Economics Research, Inc., 824 Boylston Street, Chestnut Hill, Massachusetts 02167 under Contract No. 232-81-0039 from the Bureau of Health Professions of the Health Resources and Services Administration. Ann Larsen of Health Economics Research, Inc., provided computer programming assistance, and Jean Widaman and Linda DeMarco typed the manuscript. James DeLozier, Raymond Gagnon, Hugo Koch, and Thomas McLemore of the National Center for Health Statistics provided major input into this report by providing the National Ambulatory Care Survey data tapes and patiently answering questions related to the surveys. Gene Roback of the American Medical Association provided data on physician characteristics, greatly enhancing the analytic power of the data base.

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INTRODUCTION

1.0 INTRODUCTION

1.1 Statement of the Problem

Concern over the severe maldistribution of psychiatrists, with most located in urban and suburban areas providing limited access for rural and inner-city residents, led to the development of psychiatric manpower shortage areas. However, these areas do not take into account the availability of other professionals providing mental health services, such as non-psychiatrist physicians, psychologists, psychiatric social workers, and psychiatric nurses. Recognizing this, the Office of Data Analysis and Management has begun a series of research projects to investigate the utilization of mental health services provided by these disciplines. This project documents the role played by non-psychiatrist physicians. In their landmark study of the "de facto" mental health care system, Regier et al. (1978) found that nearly one-half of all physicians' office visits in the U.S. with a mental illness diagnosis were provided by non-psychiatrists.* (Their estimates were based on the 1973 and 1975 National Ambulatory Medical Care Surveys.) If non-psychiatrists are in fact a major source of mental health care, then policymakers may not want to rely on formal mental health providers alone in their designation of shortage areas.

Unfortunately, we know very little about the nature and content of these visits to non-psychiatrist physicians. Who are these patients who seek out a non-psychiatrist physician? Do they come with physical problems which are diagnosed as psychological in origin, and are they then referred to psychiatrists? What kinds of these services do they receive? Do non-psychiatrist physicians treat mentally ill patients in the same manner as psychiatrists, or is the nature of their office visits very different?

The purpose of this paper is to answer these questions and to provide some guidance to policymakers as to whether non-psychiatrist physicians can, or should, be used to offset the projected shortfall of psychiatrists. At the same time, we can update and expand the Regier et al. study, as our analysis is based on the most recent version of the same data base (the 1980-1981 National Ambulatory Medical Care Surveys).

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*Additional studies documenting the importance of non-psychiatrist physicians in providing mental health care include Locke, 1966; Locke and Gardner, 1969; Rosen et al., 1972; Goldberg et al., 1978; Hesbacker et al., 1978, 1980; Shephard, 1983; Regier et al. 1982.

1.2 Overview

The remainder of this paper is divided into four chapters. In the following chapter, we deacribe our data source, sample, and procedures used to define mental health visits for this analysis. Chapter 3 compares mental health office visits to psychiatrists and non-psychiatrist physicians along a variety of dimensions: diagnosis, reason for visit, patient demographics, geographic location, length of visit, etc. In Chapter 4, multivariate techniques are used first to estimate the probability that a patient will see a psychiatrist, and then to estimate the probability that a psychotropic drug will be prescribed. Finally, Chapter 5 is devoted to drawing some conclusions and policy implications.

2.0 DATA SOURCES

2.1 Survey Design

The primary data base for this study is the two most recent National Ambulatory Medical Care (NAMC) surveys conducted by NCHS (1980-1981). Each annual survey is a nationally representative sample of private, office-based physicians from nine specialty groups, including psychiatry.* A multi-stage probability design was used that involved three stages: (1) the selection of primary sampling units (SMSAs or counties); (2) physician practices within primary sampling units; and (3) patient visits within practices. Physicians were asked to complete a questionnaire on a systematic random sample of visits over the course of a one-week period. Each survey year includes data on approximately 45,000 patient visits.

The NAMC surveys contain a wide range of information on every physician sampled, as well as on each visit he or she provided during the survey week. Briefly, the data include gender, age, and the subspecialty of each physician, also, whether (s)he is board-certified, in solo or group practice, and practice location. Even more data are available for each individual visit:

- age, sex, race of patient
- patient's reason for visit
- diagnosis (up to three diagnoses)
- first or repeat visit
- time spent (in minutes) in direct contact
- checklist of diagnostic and therapeutic services ordered or provided (e.g., lab tests, psychotherapy, medical counselling, etc.)
- number and type of drug(s) prescribed, if any (up to eight medications).

This level of detail not only allows us to take an in-depth look at the types of mental health services provided by non-psychiatrist physicians, but also to look at the characteristics of these providers and their patients.

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*Physician specialty was self-reported.

2.2 What Is a Mental Health Visit?

Although mental health care can come in many different forms (e.g., psychoanalysis, drug therapy) from many different types of providers (psychiatrists, other physicians, CMHCs, psychologists), our definition of mental health services is necessarily shaped by the data at hand. In the first instance, we are constrained exclusively to office-based, physician providers. Given this limitation, we have defined a mental health visit as any office visit meeting at least one of two criteria:

(1) the visit involved psychotherapy or therapeutic listening on the part of the physician, and/or

(2) the visit resulted in a psychiatric diagnosis (primary or secondary).

Clearly, each of these criteria identifies a different aspect of mental health services. In the first instance, we are interested in looking at visits involving "psychotherapy/therapeutic listening," one of the many services specified on the NAMC survey. More specifically, physicians were instructed to indicate that they provided psychotherapy/therapeutic listening if their treatment was:

> ...designed to produce a mental or emotional response through suggestion, persuasion, reeducation, reassurance, or support, including psychological counselling, hypnosis, psychoanalysis, and transactional therapy." (NCHS, 1980).

Although there is little doubt that "psychotherapy/therapeutic listening" provided by the average physician may be distinctly different from that same service provided by a psychiatrist, physicians reporting this treatment modality are presumably performing some type of mental health function, and for that reason, deserve our attention in this study. (The fact that physicians were given the opportunity to choose "medical," "diet," or even "social" counselling instead of the psychotherapy service descriptor further strengthens the validity of this measure.)

The second indicator of a mental health visit is a primary or secondary diagnosis of a mental disorder, based on the physician's reporting of an ICD-9 code(s). Second diagnosis should be keyed upon for two reasons: (1) since physical symptoms are commonly associated with psychological disorders, a physiological problem may be recorded as first diagnosis; and (2) the medical

orientation of non-psychiatrist physicians may make them more prone to cite an organic illness than a mental illness as a primary diagnosis.*

2.3 Sample Selection

Of the 90,000 or so visits available to us on the 1980-1981 NAMC surveys, three mutually exclusive sub-groups were selected for analytic purposes. These groups are:

(1) PSYCHDX: all visits to non-psychiatrist physicians having a primary or secondary diagnosis of a mental disorder;

(2) THERAPY: all visits to non-psychiatrists involving psychotherapy/therapeutic listening but no psychiatric diagnosis; and

(3) all visits to psychiatrists.

Psychiatric diagnoses were identified using ICD-9, and included codes 290.0 through 319.0. The presence of psychotherapy/therapeutic listening was indicated by a checkmark on the physician survey. Unweighted sample sizes for the three groups are 2093, 1520 and 5617 visits, respectively.

The first group of visits being analyzed includes all non-psychiatrists' visits having a mental disorder as first or second diagnosis. (Throughout this analysis, these visits will be referred to as PSYCHDX visits.) About two-thirds (62.1%) of the visits in this category had a mental disorder as primary diagnosis; the remaining 37.9 percent were included because of a psychiatric second diagnosis.

Our second group of analytic interest is composed of visits to non-psychiatrist physicians involving some sort of psychotherapy or therapeutic listening but no psychiatric diagnosis (called THERAPY visits). Although these patients have no mental illness *per se*, they are receiving counselling services from a physician.

Psychiatrists' visits represent the primary control group for our analysis. Included in this group are all visits to psychiatrists with *either* a psychiatric diagnosis or involving psychotherapy/therapeutic listening. The vast majority of psychiatrists' visits (97%) had a primary or

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*For further discussion of non-psychiatrist physicians' reluctance to assign psychiatric diagnoses, see Regier, *et al*. (1978).

secondary diagnosis of a mental disorder; the remaining 3% had psychotherapy but no psychiatric diagnosis. Approximately 0.2 percent of visits to psychiatrists (145 visits) met neither of these criteria and were excluded from the study.

In some instances, it is also of interest to compare our three analytic groups with the universe of all visits. For this reason, we include all office-based physician visits during the 1980-1981 period as another reference group on certain tables. The unweighted sample size for this group is 89,447 visits.

2.4 Adjustment Procedures for Complex Sample Design

The use of a complex sample design, like the NAMCS, carries with it two special problems for the estimation of population parameters and their variances (see Kish and Frankel, 1974; Shah et al., 1977). These difficulties arise from the non-random nature of the multi-stage sampling method which generates correlations between observations. The first problem is that the complex sampling procedure lowers the efficiency of the estimates of simple means and OLS regression coefficients. We addressed this problem by weighting each observation (visit). The weights were developed by NCHS and take into account the probabilities of selection as well as an adjustment for non-response.

The second problem is that the complex sample design causes the standard formulas used to estimate variances to be biased downward. This is important because these estimated variances are used to compute significance tests, e.g., "t" statistics. One approach to devising an accurate method of estimating variances is based on a Taylor series linearization of the calculated coefficients. While a computation program known as SURREGR is available from Research Triangle Institute to permit such estimation on linear (OLS) regression models, a comparable program for use with maximum likelihood models (such as the probit analysis performed in this paper) has not yet been developed. We do not believe that our inability to estimate correct variances poses a serious problem for this analysis, however. Previous work with the NAMCS data suggests that SURREGR statistics provide conservative, lower bounds to the true F-statistics, thus understating the significance of the estimated coefficients. (See the Final Report produced under this contract for more

detail.) The "true" F-statistics probably lie somewhere between those produced by SURREGR and OLS methods.*

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*There are virtually no differences in the statistical significance of coefficients between OLS and probit regressions.

3.0 DESCRIPTIVE RESULTS

3.1 Distribution of Mental Health Visits: Psychiatrists Vs. Non-Psychiatrists

Shown in Table 1 below is the distribution of mental health visits across psychiatrists and other physicians. The first column focuses on all visits with a psychiatric diagnosis (either primary or secondary), while the second includes all visits involving psychotherapy/therapeutic listening.* As seen in the table, non-psychiatrist physicians do indeed play an important role in the detection and treatment of mental illness, accounting for 47.5 percent of the office visits carrying a diagnosis of a mental disorder in 1980-1981, and 46.4% of the psychotherapy/therapeutic listening visits.** These are noteworthy figures, higher than one might think based on the gains of the past several decades in the mental health arena. Why, then, are non-psychiatrist physicians playing such an active role in the provision of mental health services?

TABLE 1.

DISTRIBUTION OF MENTAL HEALTH VISITS ACROSS PSYCHIATRISTS VS. OTHER PHYSICIANS

	Visits With Psych. Dx.[a]	Psychotherapy Visits[a]
Psychiatrists	52.5%	53.6%
Non-Psychiatrist physicians	47.5	46.4

[a]Includes visits with both a psychiatric diagnosis and psychotherapy.

*It should be noted that although these two visit groups are not mutually exclusive in Table 1, they have been separated out throughout the remainder of this paper. More specifically, all visits to non-psychiatrists with psychotherapy and a psychiatric diagnosis have been included only in the PSYCHDX group.

**In their well-known analysis of the de facto U.S. mental health care system, Regier et al. (1978) found similar results using 1973 and 1975 NAMCS data. It is interesting to note that there has been virtually no change in the proportion of mental health visits provided by non-psychiatrist physicians since the mid-seventies, suggesting little improvement in access to formal psychiatric care.

There may be a number of reasons why general medical physicians are treating such a large proportion of mental illnesses (as indicated by the presence of a psychiatric diagnosis). First, in their attempt to seek help for an often unidentified psychological problem (commonly accompanied by physical symptoms), many patients turn to their regular physician for immediate care. Whether or not a physician refers such a patient to specialized mental health care will depend on the physician's assessment of the seriousness of the problem, his/her experience with mental disorders, and his/her time availability, among other things.* Health insurance coverage represents an equally important reason why so many patients with psychiatric diagnoses are seen in general medical practices rather than in specialized mental health settings. Because insurors frequently place severe limitations on outpatient psychiatric care (McGuire, 1981), many patients may be forced to seek care from non-psychiatrist physicians for economic reasons alone. A third explanation has to do with a shortage of trained mental health personnel in certain parts of the country, such as in the South, or in rural areas. (We explore this hypothesis directly in the following section.) Finally, the fact that patients with an identified mental illness are found to utilize general medical services at nearly twice the rate of other patients may explain their prevalence in non-psychiatrist physicians' practices (Regier et al., 1978; Eastwood and Trevalyan, 1972).

Non-psychiatrists' frequent provision of psychotherapy visits may have a somewhat different explanation. First, we must remember that the NAMC surveys are based on physician self-reports. What constitutes "psychotherapy/therapeutic listening" to a psychiatrist is undoubtedly very different from say, a general practitioner's or internist's interpretation of this term. In the latter case, we would expect a greater emphasis on the therapeutic listening as a general indicator of some sort of counselling, while a psychiatrist would tend to interpret this service descriptor more literally, as an indicator of traditional psychotherapy or psychoanalysis.

3.2 Specialty Distribution of Non-Psychiatrist Physicians Providing Mental Health Visits

Presented in Table 2 is the specialty distribution of non-psychiatrist physicians providing mental health care. The first column includes all visits

*In section 3.4 we look directly at physicians' propensity to refer their patients in an effort to explore this issue.

to non-psychiatrist physicians with a diagnosis of a mental disorder (PSYCHDX visits); the second column represents non-psychiatrists' visits involving psychotherapy or therapeutic listening but no psychiatric diagnosis (THERAPY visits). Finally, the office visit share of all physician specialties for the 1980-1981 period is shown in the last column for comparison purposes.

It is clear from Table 2 that primary care practitioners play the most prominent role in the provision of mental health services of all general medical physicians, consistent with their function as "gatekeepers" to care. Although they provide only about 70 percent of office visits in the U.S., primary care practitioners account for nearly 9 out of 10 PSYCHDX visits (see column 1) and three-quarters of the THERAPY services provided by non-psychiatrists (column 2).

Three primary care specialties furnish the bulk of PSYCHDX visits. Together, general practitioners (GPs), family practitioners (FPs), and internists account for 77 percent of non-psychiatrists' visits with a mental illness diagnosis. Relative to office visit shares of about 12 percent each, FPs and internists are greatly overrepresented, seeing more than twice their "share" of PSYCHDX patients.

Although we would expect few, if any, medical and surgical specialists to provide mental health services, Table 2 indicates that fully 11.5 percent of all PSYCHDX visits are attributable to these highly specialized physicians.* The majority of these visits (7.3%) are provided by medical specialists, despite the fact that the surgical specialists account for twice as many visits in the general population (16% vs. 8%, see column 3). One reason why medical specialists are more active in the mental health area than their surgical counterparts might have to do with the nature of patient problems. It may be, for instance, that the type of physical complaints accompanying psychological disorders (e.g., gastrointestinal problems, asthma, palpitations) prompt patients to seek specialized medical, rather than surgical, care. Perhaps more importantly, mental health problems cannot be treated surgically, so even if a general surgeon or urologist initially identifies a mental illness, we would not expect him/her to provide continuing care.

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*In this effort, medical specialists are defined as physicians practicing in allergy, dermatology, cardiology, gastroenterology, or a range of other medical subspecialties, while surgical specialists include physicians in ophthalmology, orthopedic surgery, otolaryngology, urology, and other surgical subspecialties.

TABLE 2.

SPECIALTY DISTRIBUTION OF NON-PSYCHIATRIST PHYSICIANS PROVIDING MENTAL HEALTH CARE[a]

Specialty	Visits With a Psych. Dx. (PSYCHDX)	Psychotherapy Only (THERAPY)	All Visits
Primary Care	87.3%	75.1%	71.0%
General Practice	25.6	12.9	21.4
Family Practice	23.1	8.5	11.9
General Surgery	3.9	3.2	5.2
Internal Medicine	28.1	27.7	12.3
Pediatrics	3.6	8.1	10.9
OB-GYN	2.9	14.7	9.3
Medical Specialties	7.3	15.2	8.1
Surgical Specialties	4.2	9.4	16.0
Psychiatrists	--	--	2.6
Other	1.2	0.3	2.3

[a]Percent of visits provided by each specialty group; columns sum to 100%.

Unlike PSYCHDX visits, THERAPY visits are fairly evenly spread across all physician specialties, with nearly all specialty groups doing some amount of psychotherapy/therapeutic listening. Internists, the medical specialties, and OB-GYNs are doing the most, both in absolute terms and relative to their share of office visits generally. (Internists, for example, provide only 12.3% of all office visits but account for 27.7% of THERAPY visits.) GPs, FPs, pediatricians, and the surgical specialists, by contrast, provide considerably less psychotherapy/therapeutic listening than we might expect based on their share of office visits.

3.3 Geographic Location of Mental Health Visits

As indicated in Section 3.1 above, one reason why non-psychiatrists may be providing such a large proportion of mental health visits in the U.S. is because of the shortage of trained mental health personnel in certain parts of the country. Although data limitations preclude us from looking at the geographic distribution of all specialized mental health providers (e.g., psychologists, psychiatric social workers, etc.), we can look at the distribution of psychiatrists to see what areas are most underserved, and whether other physicians are providing more care in these psychiatrist shortage areas. Table 3 presents the distribution of mental health visits, first by region of the country, then by urban/rural location.* In the far right-hand column are psychiatrist-to-population ratios (per 1000 population) calculated using AMA data on office-based psychiatrists and Bureau of the Census population figures.

According to Table 3, the relative supply of psychiatrists varies dramatically by region of the country, even after an adjustment is made for population size.** The Northeast has the greatest number of psychiatrists per thousand population (0.096), followed closely by the West with 0.086 psychiatrists for every thousand residents. At the other end of the spectrum are the South and North Central regions, which have only about half as many psychiatrists per resident as the rest of the nation. If the geographic

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*Unfortunately, the NAMCS sample design does not allow us to reliably examine urban/rural location within region.

**Though not shown, the proportion of psychiatrists in the Northeast, North Central, South and West are 32%, 18%, 25% and 25%, respectively. Because this distribution means little without standardizing for population size (as a proxy for demand), we have focussed our discussion on psychiatrist-to-population ratios rather than just on psychiatrists.

TABLE 3.

GEOGRAPHIC LOCATION OF VISITS INVOLVING MENTAL HEALTH SERVICES[a]

Region	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits	All Visits	Psych/Pop. Ratio[b]
Northeast	23.6%	26.5%	34.7%	23.6%	0.096
North Central	22.6	24.4	13.1	25.4	0.046
South	36.6	29.2	27.5	32.6	0.049
West	17.2	19.9	24.7	18.4	0.086
Urban/Rural Location					
SMSA	69.7%	84.2%	94.7%	76.0%	0.083
Non-SMSA	30.3	15.8	5.3	24.0	0.016

[a]Columns sum to 100%

[b]Office-based psychiatrists per 1000 population in 1980. Sources: Statistical Abstract of the United States, 1981; AMA, 1979.

distribution of mentally ill persons is roughly proportional to the population distribution, therefore, it is the South and North Central areas which are clearly in shortest psychiatrist supply.

Even though psychiatrists themselves are highly maldistributed across the nation, it is conceivable that those in shortage areas could partially make up for their small numbers by providing a greater number of office visits. As seen in Table 3, however, this does not appear to be the case; rather, psychiatrists' office visits (column 3) are even more severely maldistributed than psychiatrists themselves are! Nearly 35 percent of psychiatrists' office visits are provided in the Northeast, compared with only 13 percent in the North Central region. In the South, where the largest proportion (33%) of Americans reside, we find only 27 percent of psychiatrists' visits, suggesting that considerable unmet need may exist.*

Are non-psychiatrist physicians helping to meet the demand for mental health care in parts of the country where psychiatrists are in shortest supply? Table 3 implies that the answer to this query is yes, they certainly are. Compared with the distribution of psychiatrists' visits, mental health visits by non-psychiatrists <u>are</u> disproportionately found in the North Central and Southern parts of the nation.

Western physicians are least likely to provide mental health services of all non-psychiatrist physicians. A comparatively high psychiatrist-to-population ratio may explain this result, if patients have less trouble finding and seeing a psychiatrist in the West. We test this hypothesis directly in Chapter 4, where multivariate analysis is used to determine which factors, including geographic location, affect the probability that patients will see a psychiatrist vs. another physician for mental health care.

As we might have expected, psychiatrists are disproportionately located in urban areas, even after controlling for population size. While there are 0.083 psychiatrists per thousand people in SMSAs, the comparable figure for non-SMSAs is 0.016. Psychiatrists' visits are even more skewed: 95 percent of psychiatrists' visits are provided in urban areas, compared with only 5

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*This is true despite the fact that 18% of psychiatrists reside in the North Central, suggesting that psychiatrists' work effort or productivity may be lower in this region. Regional comparisons of psychiatrists' workloads with nationally representative HCFA-NORC physician survey data for the 1977-79 period clearly refute this hypothesis, however (See Mitchell and Schurman, 1983). In fact, psychiatrists in the North Central region actually provide more office visits per week and spend more hours with patients than do psychiatrists in other parts of the nation.

percent in non-SMSAs. The fact that over 30 percent of PSYCHDX visits and 16 percent of THERAPY visits are provided by rural physicians implies that these physicians are satisfying an unmet demand, treating those patients who are unable (or unwilling) to obtain specialized mental health care.

3.4 Visit Disposition of Mental Health Visits

Earlier in Chapter 3 we noted that primary care practitioners provide the vast majority of mental health visits of non-psychiatrist physicians. What we could not ascertain, however, was whether these practitioners are acting as gatekeepers to care, referring their patients once a mental illness has been diagnosed, or whether they are treating these patients on an ongoing basis, despite the fact that they are not generally trained to provide mental health care. In this section we explore this hypothesis with two variables on the NAMC survey: visit "status" and visit "disposition."

Visit status tells us whether the physician had ever seen the patient before, and if so, whether it was for a new or old problem. Physicians treating their regular patients for an "old" (or chronic) psychiatric problem are clearly not referring these patients, choosing instead to care for the patient themselves. Patients being treated either for the first time, or for a new problem, on the other hand, may receive a referral, in which case the physician would be serving as a gatekeeper to care. Visit disposition describes future arrangements for care, if any are necessary, e.g., that the patient return at a specified time, return if needed, see another physician, etc. Although this NAMCS variable allows us to determine what proportion of visits culminate in a referral, however, we cannot tell to whom a patient was referred. As a result, we may infer that non-psychiatrist physicians are referring their emotionally disturbed patients to specialized psychiatric care, but do not know this for sure.

Table 4 presents the visit status and disposition of mental health visits. Although non-psychiatrist physicians giving mental diagnoses are treating far more new problems (of both old and new patients) than their peers in psychiatry, it is unclear that they are acting purely as gatekeepers to care. Most notably, almost two-thirds of PSYCHDX visits are actually revisits by patients with old problems -- approximately the same proportion that is found in the universe of all visits. (Psychiatrists, of course, almost exclusively see old patients with previously identified problems, consistent with the long-term nature of their most common treatment modality --

TABLE 4.

STATUS AND DISPOSITION OF MENTAL HEALTH VISITS BY VISIT CLASS

	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits	All Visits
Visit Status				
Old patient/ Old problem	62.5%	75.0%	91.7%	63.2%
Old patient/ New problem	23.3	14.6	1.2	22.4
New patient	14.2	10.4	7.1	14.4
Visit Disposition[a]				
No Follow-Up Planned	8.0%	3.0%	2.2%	11.2%
Return At Specified Time	55.5	73.0	92.6	60.6
Return If Needed	31.0	22.0	4.7	22.7
Telephone Follow-Up	4.5	6.9	0.8	3.1
Referral	5.0	5.6	0.9	2.6
Return To Referring Physician	1.4	1.5	0.3	0.7
Admit To Hospital	1.7	1.3	0.4	2.3

[a]Because these disposition categories are not mutually exclusive (e.g., a physician may do a telephone follow-up and request the patient return at a specified time), column percentages may add up to more than 100%.

psychotherapy.) If these physicians were primarily detecting and identifying the presence of a mental illness, we would expect a greater proportion to be considered "new problems."

THERAPY visits are more likely to be provided to old patients with old problems than to patients with new problems, according to Table 4. Three-quarters of all visits involving this counselling service are made by regular patients with chronic problems, despite the fact that this patient group ("old patient/old problem") accounts for only two-thirds of office visits generally. One explanation may be that physicians are more likely to counsel patients with whom they have an established relationship; this cannot explain why physicians counsel relatively few old patients with new problems, however.

Although non-psychiatrist physicians refer their mental health patients at twice the rate the average office patient is referred, referral rates are still very low -- only 5 percent of visits. Relatively few mental health visits result in "no follow-up planned," however, at least compared with all office visits generally. Only 3 percent of THERAPY visits and 8 percent of PSYCHDX visits had this visit disposition vs. 11.2 percent for office visits as a whole.

Given that mental health patients aren't being referred but are receiving some kind of follow-up treatment, what is the nature of that continued contact? For THERAPY patients, it is usually a future appointment to see the physician. Nearly three out of four THERAPY patients are instructed to "return at a specified time," a considerably greater number than for office patients in general. (For this group, it's only three of five, or 60%.) PSYCHDX patients, by contrast, are disproportionately told only to "return if needed", which is somewhat surprising given the nature of their problems.

3.5 Characteristics of Patients Receiving Mental Health Services

It is possible that non-psychiatrists refer only a small proportion of their PSYCHDX patients because these individuals have fairly mild psychiatric problems, disturbances which can be handled, if necessary, in a general medical practice. Alternatively, physicians may not be making referrals because their patients have sought care for a physical problem which either accompanies, or is symptomatic of, a mental disorder. In this section, we compare patients' "reasons for visit" and diagnoses across the three groups to see whether psychiatrists are treating a different, and presumably "sicker," patient population than other physicians (in terms of mental illnesses). (Evidence of this would suggest that the most serious cases are,

in fact, being referred.) We also look at the demographic characteristics of patients to see what kinds of patients are being seen by psychiatrists vs. other physicians.

Reason For Visit

A unique feature of the NAMC survey is that it asks physicians to record for each patient the "principal problem(s), complaint(s), or symptom(s) of this visit in the patient's own words" (NCHS, 1979). Known as the Reason For Visit (RFV) classification, this system allows us to explore the patient's motivation for seeking care, which may differ dramatically from the physician's assessment of the problem (and hence, his or her diagnosis). Shown in Table 5 are the most frequently cited reasons for visit, organized according to whether the RFV is "psychological" or "physiological" in nature. RFVs seldom reported have been grouped together into an "all other" category, also disaggregated by type of complaint, i.e., mental or physical.

It has been frequently argued that one reason non-psychiatrist physicians are so active in the mental health area is that they often discover mental illnesses in the process of treating physical symptoms. Table 5 supports this hypothesis; nearly three out of four PSYCHDX visits (72%) have some sort of physical symptom as their chief complaint.* Not surprisingly, patients receiving therapeutic listening services from non-psychiatrists are even more likely to come in with physical presenting problems -- over 95 percent of THERAPY visits reported other than psychological reasons for visit. Just the opposite is true of psychiatrists' patients, of course, the vast majority of whom (85%) are motivated to see a psychiatrist by emotional or psychological problems.

General symptoms (e.g., chest pain, fever, exhaustion), and headaches and dizziness are some of the most commonly cited RFVs for patients given psychiatric diagnoses by non-psychiatrist physicians. Together these two RVP groups account for nearly a quarter of PSYCHDX visits (compared with merely 3.3 percent of psychiatrists' visits). The next most frequently reported RFV for this group is psychological in nature: anxiety and nervousness,

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*In their 1969 study of psychiatric disorders among the patients of GPs and internists, Locke and Gardner (1969) present figures suggesting that a somewhat smaller proportion of patients with psychiatric problems (64.7%) came in with a psychological complaint. Although our samples are by no means comparable, their findings also provide evidence that physicians often detect mental disorders in the process of treating physical ills. (This estimate was derived from frequencies presented in their Table 4.)

TABLE 5.

PATIENT'S REASON FOR VISIT BY VISIT CLASS[a]

Reason For Visit	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits
Psychological Symptoms			
Anxiety and Nervousness	11.0%	1.3%	15.6%
Fears and Phobias	0.3	0.0	2.6
Depression	6.3	0.3	21.6
Behavioral Disturbances	0.5	0.2	4.4
Sleep Disturbances	2.2	0.3	1.4
Psychosexual Disorders	1.5	0.1	1.4
Anger	0.0	0.0	1.5
Identity Problems	0.3	0.0	2.5
Alcohol, Smoking and Drug Problems	1.9	0.0	0.1
Psychotherapy	0.1	0.1	9.1
Social Counselling	1.4	0.3	15.8
Other Psychological Problems	2.3	0.0	9.1
SUBTOTAL	27.8	4.4	85.1
Other Reasons For Visit			
General Symptoms (e.g., chest pain, fever, exhaustion)	12.4	11.7	2.3
Headache, Dizziness	11.2	4.2	1.0
Heart Problems, Hypertension	2.9	5.0	0.2
Vision Dysfunctions, Ear Problems	1.4	4.2	0.2
Respiratory Sx. (e.g., cough, cold, flu)	4.4	5.8	0.2
Abdominal or Stomach Pain, Cramps	7.5	7.4	1.2
Genitourinary Symptoms	2.6	8.6	0.1
Neck, Back or Leg Problems	5.8	9.1	0.8
Diagnostic Tests/Results	3.8	3.3	0.1
Medical Counselling	1.7	1.2	0.6
General Medical Exams	5.6	5.5	0.4
Pregnancy and Pre-natal Exams	1.0	7.5	0.0
Pre-operative, Post-operative Visit	0.5	3.0	0.0
Other Non-Psychological Problems	11.4	19.1	7.8
SUBTOTAL	72.2	95.6	14.9

[a]Columns sum to 100%.

accounting for 11 percent of visits. Depression is the only other psychological problem cited by PSYCHDX patients with any real frequency; about 6 percent of visits had this complaint. (More than one out of five visits to psychiatrists, by contrast, reported depression as their primary RFV.)

As mentioned above, very few THERAPY visits (merely 4.4%) indicate psychological symptoms or complaints as their reason for visit. (Recall, however, that visits with a psychiatric diagnosis were specifically excluded.) Rather, these patients are seeing physicians for a variety of other reasons, such as general symptoms (11.7%), neck, back and leg problems (9.1%), genitourinary symptoms (8.6%), and abdominal and stomach problems (7.4%), among other things. Exams, both general and prenatal/pregnancy, account for another 13 percent of THERAPY visits, suggesting that at least some physicians consider counselling to be an integral part of the examination process. The fact that over 7 percent of THERAPY visits report pre-natal or pregnancy exams as their primary RFV partially explains why OB-GYNs are so prominent in this visit category (recall Table 2); apparently, many OB-GYNs view time spent counselling expectant mothers as therapeutic listening.

Diagnosis

Mental health patients seen by non-psychiatrist physicians clearly have very different reasons for seeking care than psychiatrists' patients. Yet how different are the illnesses afflicting these patients from the physician's standpoint? Are psychiatrists treating the most serious mental illnesses, like affective psychoses and schizophrenia, and other physicians, the milder disorders, such as depression? Of course, there is always the possibility that psychiatrists identify the most serious disorders merely because they are trained to do so, and that true (rather than reported) casemixes differ little between the two groups. Despite this potential "endogeneity," however, we now turn to the diagnostic distribution for our three mental health groups.

The diagnostic casemix of mental health visits is presented in Tables 6 and 7. Table 6 compares the psychiatric diagnoses treated by non-psychiatrists and psychiatrists. In the first column is the distribution of psychiatric diagnoses -- whether primary or secondary -- treated by non-psychiatrist physicians (PSYCHDX visits). The second column describes the same distribution for psychiatrists. (The 3% of psychiatrists' visits involving psychotherapy but no mental illness diagnosis have been excluded.) Table 7 focuses on the most frequent diagnoses associated with THERAPY visits. The diagnostic casemix for all physician visits provided in 1980-1981 is also presented in Table 7 for comparison purposes.

TABLE 6.

DIAGNOSTIC CASEMIX OF PHYSICIANS TREATING MENTAL ILLNESS[a]

Diagnosis (ICD-9 Code)	Non-Psychiatrists' Visits With Psych. Dx. (PSYCHDX)	Psychiatrists' Visits With Psych. Dx.
Neurotic disorders (300.0-300.9 except 300.4)	34.1%	22.6%
Depression (309.0, 309.1, 311, 300.4)	27.5	28.3
Psychalgia (307.8)	8.2	0.1
Alcohol and drug dependence (303.0-304.9)	5.1	1.0
Mental disorders due to brain damage (310.0-310.9)	2.9	0.4
Physiological malfunction from mental factors (306.0-306.9)	2.7	0.6
Acute reaction to stress (308.0-308.9)	2.3	0.5
Affective psychoses (296.0-296.9)	2.3	6.8
Adjustment reactions (309.2-309.9)	1.3	6.0
Schizophrenia (295.0-295.9)	1.2	10.5
Personality disorders (301.0-301.9)	0.4	17.0
Other mental disorders	12.0	6.2

[a]Columns sum to 100%.

As seen in Table 6, non-psychiatrist physicians treating mental disorders do have a less seriously ill casemix than their peers in psychiatry. While over one-third of psychiatrists' visits are devoted to the treatment of personality disorders, schizophrenia and affective psychoses, the comparable figure for other physicians is about 4 percent of visits. The types of mental illnesses frequently handled by these other physicians tend to be less serious in nature, such as neurotic disorders (34.1% of visits), depression (27.5%), psychalgia, or "psychogenic pain" (8.2%), and alcohol and drug dependence (5.1%). Psychiatrists, too, treat a large number of depressive disorders (over a quarter of their caseloads) but relatively fewer patients with neurotic disorders. (For both groups, "anxiety states" comprised the vast majority of neurotic disorders.)

It's interesting to note that a number of the psychiatric diagnoses made by non-psychiatrists are either physiological in nature (e.g., physiological malfunction resulting from mental factors; psychalgia) or are not generally responsive to psychiatrists' foremost treatment modality, psychotherapy (e.g., mental disorders due to brain damage). Still others, like acute reaction to stress, alcohol and drug dependence, and adjustment reactions, are often accompanied by physical symptoms. These findings suggest that non-psychiatrist physicians are really providing a different product than psychiatrists, treating the disorders which are less acute, frequently associated with physical symptoms, and not exclusively in the domain of psychiatrists. At the same time, the most seriously ill patients are being treated by psychiatrists, implying that some referral network is at work to channel patients needing it most to psychiatric care.

By definition, non-psychiatrists' THERAPY visits cannot have a psychiatric diagnosis. (Those which did were included in the PSYCHDX visit category.) What, then, are the diagnoses of the patients receiving this counselling service? As seen in Table 7, a large proportion of these patients have hypertension -- about 8 percent. This is considerably higher than the 1980-1981 prevalence rate found in office visits nationwide of 5.1 percent, suggesting that hypertension patients are quite likely to receive some sort of counselling services from their physician during a visit. Symptoms and ill-defined conditions account for the next largest fraction of THERAPY visits (7.5%), followed by malignant neoplasms (6.2%). Although both of these diagnostic groups are overrepresented relative to their share of office visits generally, the difference for cancer patients is especially dramatic. Malignant neoplasms account for only 1.7 percent of all office visits, but

TABLE 7.

DIAGNOSTIC CASEMIX OF PSYCHOTHERAPY VISITS AND ALL OFFICE VISITS, 1980-1981[a]

Diagnosis (ICD-9 Code)	Non-Psychiatrists' Psychotherapy Visits (THERAPY)	All Visits
Hypertension (401-405)	8.2%	5.1%
Symptoms and ill-defined conditions (780-799)	7.5	3.3
Malignant neoplasms (140-208)	6.2	1.7
Exams (follow-up, general and special) (V67, V70, V72)	5.5	6.1
Female genital tract disorders (614-629)	5.1	2.7
Normal pregnancy (V22)	4.1	4.4
Ischemic heart disease (410-414)	3.4	1.7
Well baby visit (V20)	3.1	3.1
Rheumatoid arthritis and osteoarthrosis (714-715)	2.3	1.4
Ovarian dysfunction (256)	2.1	0.1
Obesity (278)	1.4	1.1
All other diagnoses	51.1	69.3

[a]Columns sum to 100%.

as much as 6.2 percent of THERAPY visits. Given the seriousness and fear associated with a diagnosis of cancer, it's not surprising that these patients receive more psychotherapy/therapeutic listening services than the average patient.

Demographic Characteristics of Patients

In addition to looking at patient diagnosis and reason for visit, it is of interest to know the demographic characteristics of patients receiving mental health services from physicians, both inside and outside the specialty mental health sector. Table 8 presents the distribution of mental health visits across sex and age cohorts; the proportion of visits provided to nonwhite patients is shown at the bottom of the table.

One of the more interesting results in Table 8 is the disproportionate number of women receiving psychotherapy/therapeutic listening services from non-psychiatrist physicians. Nearly 70 percent of all THERAPY visits are provided to female patients, even though females accounted for only 60 percent of office visits in 1980-1981. (About one-fifth of THERAPY visits to women were provided by OB-GYNs.) Relative to their share of office visits overall, women between the ages of 45-64 are most overrepresented in the THERAPY group. Though the differences are far smaller, a disproportionate number of PSYCHDX visits are also made by female patients (64%).

Despite the fact that the elderly are thought to have an even greater need for mental health services than the general population (GAO, 1982), very few persons aged 65 or over receive care from office-based psychiatrists. Less than 4 percent of psychiatrists' visits are provided to persons over 65 years of age, even though this age group accounts for almost a fifth of office visits generally. Of course, it may be that the elderly are just not being treated by office-based physicians -- psychiatrists or otherwise -- for mental illness. If this were the case, elderly visits to non-psychiatrists for mental disorders would also be few. To test this hypothesis, we looked at the distribution of elderly visits with a psychiatric diagnosis across psychiatrists versus other physicians (not shown). Only about 17 percent of these visits were provided by psychiatrists, suggesting that the elderly are, in fact, being treated for mental disorders, but not by physicians trained in psychiatry. Rather, four out of five persons age 65 or older with a mental illness are seen in the offices of non-psychiatrist physicians. (The comparable figure for persons under age 65 is about two out of five, or 42.5% of visits.)

TABLE 8.

CHARACTERISTICS OF PATIENTS RECEIVING MENTAL HEALTH SERVICES

Patient Characteristic	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits	All Visits
% Female	63.6%	69.4%	58.3%	60.2%
< 14 years	1.7	3.7	1.6	8.6
14-24	4.5	8.1	5.9	8.8
25-44	21.6	21.0	33.8	17.8
45-64	21.0	21.2	14.3	13.2
65 and over	14.8	15.4	2.7	11.8
% Male	36.4	30.6	41.7	39.8
< 14 years	3.1	5.2	2.4	9.5
14-24	3.3	1.3	5.4	4.7
25-44	12.7	6.5	22.0	8.8
45-64	11.7	8.6	10.7	9.1
65 and over	5.5	9.0	1.2	7.6
% Nonwhite	12.1	9.7	4.9	10.9

Why is it that psychiatrists aren't treating the elderly? One explanation may have to do with the elderly's attitudes toward psychiatric care. According to a 1978 Report by the President's Commission on Mental Health (see GAO, p. 18), older persons still associate fear and shame with mental illness. As a result, they may be reluctant to seek help from a psychiatrist, preferring instead to see their regular physician, or to seek no care at all. Another explanation may be related to psychiatrists' attitudes towards treating mental illness in the elderly. Some studies have argued that psychiatrists view mental illness in the elderly as untreatable (Gibson, 1973), or are just generally reluctant to treat older patients (Gallagher et al., 1965; GAO, 1982). Finally, limited Medicare coverage for outpatient psychiatric care may explain the small number of elderly patients seen by office-based psychiatrists. Optional Part B of Medicare, which covers ambulatory physician care for the elderly, allows only 50 percent of charges for psychiatric services per year, or $250, whichever is less.

Although the elderly receive little mental health care from office-based psychiatrists, we do know that other types of physicians are picking up some of the slack. Almost one quarter (24.4%) of the THERAPY visits provided by non-psychiatrist physicians are to patients age 65 or older, as are 20 percent of PSYCHDX visits.

The last row of Table 8 shows the percent of mental health visits provided to nonwhite patients. Like the elderly, relatively few nonwhite patients are treated by psychiatrists in private practice. Although they account for 11 percent of all office visits, nonwhites comprise only 5 percent of psychiatrists' caseloads. Again, other physicians may be providing a safety net (12.1% of PSYCHDX visits are to minorities), though it may also be the case that nonwhites are more likely to receive mental health services in institutional settings.

3.6 Characteristics of Physicians Providing Mental Health Visits

Now that we know something about the patients receiving mental health care from non-psychiatrist physicians, it would be interesting to know more about the physicians providing this care. Are they younger than the average physician, for instance, or more likely to be female? What proportion are board-certified? Table 9 provides some answers to these questions, presenting physician characteristics by visit category.

Two numbers are presented for each characteristic for non-psychiatrists in Table 9 -- a specialty-adjusted percentage and an unadjusted percentage. The proportion of board-certified physicians in the THERAPY group may appear high, for instance, because a disproportionate number of these providers are OB-GYNs, who tend to be board-certified. To adjust for the influence of specialty, we have applied the specialty distribution for all office visits in 1980-1981 to our physician characteristics, and it is on these specialty-adjusted figures that this discussion will focus.

As seen in the table, female physicians are no more likely to treat (or detect) mental disorders than the average physician. They are more likely to provide therapeutic listening to patients, however, accounting for nearly twice as many THERAPY visits as their office visit share would imply. (Whereas 4.0% of all office visits are provided by female physicians, 7.3% of THERAPY visits are.) This finding is consistent with our earlier NAMCS work, which showed female physicians doing significantly more of all types of counselling (e.g., diet, medical, family planning, etc.) than their male peers (Mitchell et al., 1983).

Board-certified physicians also do somewhat more therapeutic listening than their office visit shares would suggest. They are notably under-represented in the PSYCHDX group, on the other hand, furnishing only 47 percent of these visits.

Relative to both psychiatrists and all other office-based physicians, non-psychiatrists treating mental illnesses are slightly older than we might expect, even after controlling for specialty. More than 17 percent of PSYCHDX visits are provided by physicians over sixty years of age, compared with about 15 percent of psychiatrists' visits and 14 percent of office visits generally. At the other end of the spectrum, disproportionately few PSYCHDX visits (only 18.7 percent) are supplied by physicians under forty, despite the fact that this group provided almost 28 percent of all office vists in 1980-1981.

3.7 Content of Mental Health Visits

In the preceding sections, we determined what types of patients are receiving mental health services from non-psychiatrist physicians, why those patients have sought care, and the characteristics of practitioners providing that care. We have yet to explore the content of these physician visits, however, to see exactly what mix of services are being provided. Are non-psychiatrists treating their mental health patients very differently from

TABLE 9.

CHARACTERISTICS OF PHYSICIANS PROVIDING MENTAL HEALTH VISITS

	Visits With Psych. Dx. (PSYCHDX)		Psychotherapy Visits (THERAPY)		Psychiatrists' Visits	All Visits
	adjusted[b]	unadjusted	adjusted[b]	unadjusted		
Characteristic						
Female[a]	4.2%	3.4%	7.3%	8.7%	10.2%	4.0%
Board-Certified[a]	47.2	54.8	64.2	71.7	59.4	59.6
Physician Age[a]						
Under 40 Years	18.7	21.1	21.5	24.4	20.2	27.8
40-60 Years	59.9	60.8	62.0	61.6	65.1	57.8
Over 60 Years	17.4	18.2	13.8	14.0	14.7	14.4

[a]Percent of visits provided by physicians with characteristic.

[b]Adjusted by the specialty shares for all physician visits, 1980-1981.

their peers in psychiatry, or are the treatment modalities fairly similar? And how long are their THERAPY visits? As long as a psychotherapy visit provided by a psychiatrist? Or shorter, more like the average office visit? Table 10, presenting the service mix of mental health visits provides some answers to these questions, among others. Each number in the table represents the proportion of visits in which a given service was provided; e.g., 22.7 percent of PSYCHDX visits had a general exam. Again, all 1980-1981 office visits are shown for comparison purposes.

As seen in Table 10, non-psychiatrists providing mental health care perform many more diagnostic services during an office visit than their colleagues in psychiatry. Non-psychiatrists' mental health visits are far more likely to include either a general or limited exam, a blood pressure check, lab tests, and even an X-ray or ECG than visits provided by a psychiatrist. (The only diagnostic service which psychiatrists were more likely to perform was a mental status exam, provided in about 30 percent of visits.) These results are not surprising, given that such a large proportionof non-psychiatrists' mental health patients come in with physical symptoms and complaints (recall Table 5). It's also consistent with the more medical orientation of these physicians.

Another way to capture diagnostic intensity is to look at the proportion of visits in which no diagnostic procedures were performed. For psychiatrists, this figure is about 66 percent, or two-thirds of their visits. For other physicians, the proportion is far lower: only 7 percent of PSYCHDX visits and 4 percent of THERAPY visits included no diagnostic services.

In addition to performing more diagnostic services than psychiatrists, other physicians also rely on a wider variety of therapeutic services. In particular, they are more likely to provide social or medical counselling, advice on diet, and family planning services than psychiatrists. They also prescribe drugs in a greater proportion of visits (a result we explore in greater detail in the following section). While psychiatrists prescribe or order a drug(s) in 35 percent of their visits, the comparable rate for other physicians is approximately twice as high (78% of PSYCHDX visits, 71% of THERAPY visits).

Psychotherapy appears to be the only therapeutic service provided more frequently by psychiatrists. Not surprisingly, almost all psychiatrists' visits (96%) include psychotherapy, compared with only a quarter of PSYCHDX visits. The fact that other types of counselling (medical, social and diet) are being provided in greater frequency by non-psychiatrists suggests that

TABLE 10.

CONTENT OF OFFICE VISIT BY VISIT CLASS

	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits	All Visits
Diagnostic Services[a]				
General Exam	22.7%	20.2%	3.4%	15.4%
Limited Exam	59.9	65.0	9.2	64.3
Blood Pressure	56.2	56.2	2.7	34.2
Lab Test	23.2	34.2	1.2	21.9
X-Ray	6.5	8.0	0.0	7.4
ECG	7.8	6.3	0.0	3.0
Mental Status Exam	6.4	6.8	29.6	1.1
No Diagnostic Services	6.8	4.1	65.6	8.1
Therapeutic Services[a]				
Psychotherapy/ Therapeutic Listening	24.8	100.0	96.0	4.9
Social Counselling	12.4	13.2	7.5	2.1
Medical Counselling	33.9	52.2	3.9	23.0
Diet Counselling	9.0	20.5	1.0	8.0
Family Planning	1.1	3.7	0.3	2.0
Drugs (% of Visits)	77.7	70.9	35.0	62.0
No Therapeutic Services	36.1	0.0	1.6	53.7
Mean Length of Visit (in minutes)	19.6	19.7	44.4	15.3

[a]Percent of visits in which service was provided.

these physicians are taking the time to deal with some of their patients' concerns, even though they may not be providing traditional psychotherapy.*

It's interesting to note that non-psychiatrists' mental health visits actually involve more diagnostic and therapeutic services than the average office visit in the U.S. This is particularly true of THERAPY visits, which involve significantly more blood pressure checks, lab tests, ECGs, mental status checks, counselling services and drug prescriptions than the average physician visit.

The last analytic variable presented in Table 10 is the average length of an office visit, expressed in minutes. As we might expect, visit lengths for non-psychiatrists' mental health visits are somewhat longer than the modal office visit in the U.S., by about 4.3 minutes, on average (19.6 minutes vs. 15.3). These longer visits are consistent with the greater diagnostic and therapeutic intensity of mental health visits noted above, though they are not as long as we might expect given the amount of counselling reported. Relative to psychiatrists, moreover, non-psychiatrists don't spend nearly as much time with their mental health patients. While psychiatrists spend 44.4 minutes with the average office patient, the comparable figure for other physicians providing mental health care is 19.6 minutes.

3.8 Psychotropic Drug Use During Mental Health Visits

In the preceding section, we saw that non-psychiatrist physicians order drugs in twice as many of their mental health visits as psychiatrists. But are non-psychiatrists ordering more psychotropic agents than their peers in psychiatry, or are their drug prescription rates higher because they are prescribing other types of drugs, like aspirin or cardiovascular drugs? Moreover, if they are ordering more psychotropic drugs, what sorts of drugs are being prescribed? The answer to these questions will, of course, have important implications for appropriateness of care.

Unlike the other services included on the NAMC survey, the provision of drug therapy was not indicated by the presence or absence of a checkmark by the physician. Rather the physician was asked to explicitly:

> ...list, using brand or generic names, all medications, including drugs, vitamins, hormones, ointments, and suppositories ordered, injected, administered, or provided

*The 25% of non-psychiatrists' mental illness visits involving "psychotherapy/therapeutic listening" are also quite different than a psychiatrist's visit in that they are shorter (only 23.4 minutes vs. 44 minutes) and more service-intensive.

this visit including prescription and nonprescription drugs, vaccinations, immunizations, and desensitization agents. Also included are drugs and medications ordered or provided prior to the visit that the physician instructed or expected the patient to continue taking.

Up to eight medications could be recorded. From this detailed drug information we were able to identify which mental health visits involved psychotropic drug orders, and which involved other kinds of drugs. The actual type of psychotropic agent prescribed (or continued) was thus also available for analysis.

Drug Prescription Rates

Table 11 presents some summary statistics on physicians' drug prescribing practices during mental health visits. (The first row of the table merely repeats the information shown in Table 10.) Apparently, non-psychiatrist physicians do order psychotropic drugs in a greater proportion of their office visits, if patients have a psychiatric diagnosis (see row 2). Whereas 31 percent of psychiatrists' visits result in a psychotropic agent being prescribed, the comparable figure for PSYCHDX visits is almost 45 percent. Not surprisingly, non-psychiatrists providing only psychotherapy are far less likely to prescribe psychotropic drugs. Only one out of ten patients in the THERAPY group was given a psychotropic drug.

Although non-psychiatrists order psychotropic drugs in almost 50 percent more of their visits with a psychiatric diagnosis than psychiatrists (44.6% vs. 30.8%), this does not necessarily mean that they are providing inappropriate care. Because psychiatrists tend to provide ongoing therapy, seeing the same patients for an extended period of time, they are not likely to order a new psychotropic drug (or renew a prescription) every time they see a patient (i.e., during every visit). (Recall from Table 5 that more than nine out of ten of psychiatrists' visits are made by old patients with old problems.) Rather, the medication would be ordered or changed perhaps only a few times during the course of treatment, effectively reducing the percent of visits in which a psychotropic agent was prescribed. (If the psychiatric patient were the unit of analysis, therefore, this figure might be far

*Though not shown, the mean number of drugs ordered in the average office visit in the U.S. is only 1.1, suggesting that non-psychiatrists are using drug therapy more intensively for their mental health patients than for other office patients.

TABLE 11.

DRUG PRESCRIBING PRACTICES DURING MENTAL HEALTH VISITS

	Visits With Psych. Dx. (PSYCHDX)	Psychotherapy Visits (THERAPY)	Psychiatrists' Visits
Percent of visits with any drug	77.7%	70.9%	35.0%
Percent of visits with psychotropic drug	44.6%	9.8%	30.8%
Mean number of drugs per visit	1.6	1.6	0.6
Mean number of psychotropic drugs per visit	0.5	0.1	0.4
Mean number of drugs per drug visit[a]	2.0	2.3	1.6
Mean number of psychotropic drugs per drug visit[a]	0.65	0.15	1.14

[a]Includes only those visits in which at least one drug was prescribed.

higher.) Non-psychiatrists treating mentally ill patients, by contrast, tend to see these patients less frequently, devoting a greater proportion of their practices to new patients, or to regular patients with new problems. As a result, we would expect the fraction of visits involving a psychotropic drug for these physicians to be higher, which it is.

Not only do non-psychiatrists order drugs (of any kind) in a greater proportion of their mental health visits, but they also order significantly more drugs per visit (row 3) -- a finding consistent with their common treatment of physical symptoms. Psychiatrists order an average of 0.6 drugs per office visit compared with 1.6 drugs per visit for other physicians providing mental health care (nearly a three-fold difference).* When we focus on the mean number of psychotropic drugs per visit (row 4), however, these differences nearly disappear. PSYCHDX visits show an average of 0.5 psychotropic drugs per visit compared with 0.4 psychotropics per psychiatrist visit. As we would expect, very few psychotropic drugs are prescribed in THERAPY visits: merely 0.1 per visit.

The last two rows in Table 11 present the average number of drugs (of any kind) per drug visit, and the average number of psychotropic drugs per drug visit. A "drug visit" is a visit in which at least one drug was prescribed. These rates can thus be interpreted as an intensity measure.

For non-psychiatrists relying on drug therapy as a treatment modality, the mean number of drugs prescribed during PSYCHDX visits was 2.0 per visit. For THERAPY visits, this figure was even higher -- 2.3 drugs per drug visit. Psychiatrists, by contrast, order drugs with less intensity than other physicians providing mental health services, prescribing an average of 1.6 drugs per drug visit.

Given that general medical physicians order drugs more intensively than psychiatrists, do they also prescribe a greater number of psychotropic drugs per drug visit? According to Table 11, the answer is clearly "no." Patients with a psychiatric diagnosis receive an average of 0.65 psychotropics per drug visit from a non-psychiatrist, compared with as many as 1.14 psychotropics from a psychiatrist. Apparently, physicians who are not specifically trained in psychiatry and the uses of psychotropic drugs are not likely to prescribe more than one psychotropic at a time.

Psychotropic Drug Prescribing Practices

Table 12 presents the type of psychotropic agents being prescribed during physicians' mental health visits. These drugs have been disaggregated into

TABLE 12.

TYPE OF PSYCHOTROPIC DRUGS PRESCRIBED DURING MENTAL HEALTH VISITS

	Visits With Psych. Dx. (n = 879)	Psychotherapy Visits (n = 155)	Psychiatrists' Visits (n = 1770)
Psychotherapeutic Agents			
Antidepressants	32.5%	25.7%	56.0%
MAO inhibitors	0.1	0.0	4.0
Lithium	1.9	0.7	9.5
Tricyclics	30.5	25.0	42.5
Antipsychotics	22.0	17.1	41.9
Anxiolytics	55.7	62.8	30.9
Benzodiazepine	46.3	52.1	28.0
Non-benzodiazepine	9.4	10.7	2.9
Other Psychotherapeutic Agents	2.6	0.0	0.6

four broad classes -- antidepressants, antipsychotics, anxiolytics (anti-anxiety drugs), and other psychotherapeutic agents. Each number in the table represents the percent of psychotropic drug visits in which a particular type of psychotropic was prescribed, e.g., 56 percent of psychiatrists' visits involving psychotropic drugs had an antidepressant prescribed. (The unweighted number of visits involving psychotropic drugs is shown at top.) Because a small proportion of mental health visits resulted in two or more psychotropic drug prescriptions, the four drug categories sum to more than 100 percent. A brief description of each drug class is provided below.

Antidepressants: This class includes the tricyclics, the monoamine oxidase (MAO) inhibitors, and Lithium, which is most often used in the treatment of manic-depressive disorders. The efficacy of these drugs in the treatment of depression has been well established in controlled clinical trials. Some of the more well-known antidepressants include Tofranil, Elavil, and Adapin.

Antipsychotics: Also known as major tranquilizers or neuroleptics, antipsychotics are used primarily in the treatment of the major or most severe psychiatric disorders -- namely the psychoses. Their use in schizophrenic patients leads to a decrease in agitation, thought disorders, hallucinations and delusions. Low potency antipsychotics include such drugs as Thorazine and Mellaril, while Prolyxin, Haldol, and Stelazine represent high potency antipsychotics.

Antianxiety Agents: These compounds, also referred to as minor tranquilizers or anxiolytics, are used for the short-term management of serious anxiety states. Benzodiazepine anxiolytics include Valium, Librium, Serax, and Ativan, while non-benzodiazepine anxiolytics include Equanil and Miltown, among others.

Other Psychotherapeutic Agents: This group of drugs includes all drugs not elsewhere classified.

Of all the psychotropic drug visits provided by psychiatrists during 1980-1981, the majority (56%) involved antidepressants. Tricyclics were the most common antidepressant used, accounting for 42.5 percent of psychiatrists' psychotropic drug visits. Lithium and MAO inhibitors, the less common and potentially more dangerous antidepressants, are also being prescribed by psychiatrists, but with much less frequency (accounting for 9.5% and 4% of their drug visits, respectively).

Psychiatrists appear to order antipsychotics about as often as they order tricyclics. Forty-two percent of the psychotropic drug visits provided by psychiatrists involved some type of antipsychotic. Less heavily relied on are the anxiolytics, accounting for only 31 percent of their psychotropic drug visits.

Non-psychiatrist physicians providing mental health services have notably different psychotropic drug prescribing practices than their peers in psychiatry. They use far fewer antidepressants and antipsychotics, for instance, yet many more anxiolytics. In large part, these findings are consistent with the less severe casemixes of non-psychiatrists, though it is still surprising that they prescribe such a large number of antipsychotics. The fact that non-psychiatrists almost never order MAO inhibitors or Lithium when choosing an antidepressant suggests that these drugs are not being used indiscriminately by physicians not familiar with their contraindications and dietary restrictions.

4.0 MULTIVARIATE ANALYSIS

4.1 Probability of Seeing a Psychiatrist Vs. a Non-Psychiatrist Physician

In the descriptive work, we looked at the characteristics of physicians providing mental health care, the content of that care, and the characteristics of patients seen by these providers. In comparing the visits provided by psychiatrists vs. other physicians, moreover, we found some important differences. For example, non-psychiatrists' mental health patients are far more likely to have a "physiological" reason for seeking care than psychiatrists' patients. They are also more likely to be new patients, or to come in with a "new problem" than a person seeing a psychiatrist. The demographic characteristics of patients are also different for the two physician groups. While the patients seen by psychiatrists are overwhelmingly white, and primarily between the ages of 25 and 65, other specialty physicians treat a larger proportion of the aged, children, and minorities. Female patients also make up a greater proportion of non-psychiatrists' mental health visits than of psychiatrists'.

In addition to these patient mix differences, the geographic distribution of mental health visits provided by psychiatrists vs. other physicians was very different. Non-psychiatrists provided relatively more visits in the North Central and Southern regions of the country, where psychiatrists are in shortest supply, while psychiatrists' visits were disproportionately found in the West and Northeast. Finally, non-psychiatrists' providing mental health care were notably more active in the rural parts of the nation, again appearing to fill a shortage of psychiatrists.

Taken as a group, these findings suggest that a number of factors might influence the probability that a patient will receive mental health services from a psychiatrist vs. another kind of physician. In this section, we test this hypothesis explicitly using multivariate regression techniques. From our multivariate work, we will be able to tell whether, and to what degree, patient characteristics and geographic location do affect the likelihood that a person needing mental health care will receive those services from a physician trained in psychiatry.

Empirical Specification and Estimation

The probability that a patient will see a psychiatrist for mental health care is hypothesized to depend on the individual's demographic characteristics, visit "status" (i.e., new or old patient/problem), his or her reason

for seeking care (Reason For Visit), and geographic location. Because we are interested in all mental health services, both visits with a psychiatric diagnosis and visits involving psychotherapy are included in our sample. Variable means and definitions are presented in Table 13.

Dependent Variable: The dependent variable for this analysis is a dichotomous variable set equal to one if a mental health visit was provided by a psychiatrist (PSYCH=1) and zero if provided by another physician specialty (PSYCH=0).

Independent Variables - Patient Characteristics: Three sets of variables are included in the regression to capture a patient's demographic characteristics. FEMALE is set equal to one if the visit was made by a female patient, and zero otherwise. NONWHITE is similarly defined, set equal to one if a visit was provided to a minority patient. Finally, four variables are included to capture patient age: AGE 14, AGE 14-24, AGE 45-64, and AGE 65. Visits made by persons between the ages of 25 and 44 (inclusive) are in the intercept. Based on our descriptive results, we expect nonwhite patients and those at either end of the age spectrum (14, 65 and over) to be less likely to see a psychiatrist compared to other patients. This may also be true of female patients.

Visit Status: Whether a patient is new (NEWPT) or visiting his/her regular physician with a new problem (NEWPROB) is also hypothesized to influence the probability that the visit will be provided by a psychiatrist. Because psychiatrists devote such a large proportion of their practices to old patients with previously identified problems (in the intercept), and relatively few visits to new patients, we expect both of these variables to have a negative sign (indicating a smaller probability of receiving psychiatric care).

Reason For Visit (RFV): As we noted in Section 3.5, patients receiving mental health services from non-psychiatrists had considerably different "reasons for visit" than those treated by psychiatrists. Though there was some overlap, psychiatrists' patients tended to have more "psychological" RFVs , while other physicians' patients were often motivated by physical, rather than psychological, complaints. In this effort, 22 separate RFV variables are specified to capture the most common patient problems. (See Table 13 for precise

TABLE 13.

VARIABLE MEANS AND DEFINITIONS

Variable	Definition	Mean
PSYCH	whether a visit was provided by a psychiatrist (PSYCH = 1) or another physician (PSYCH = 0)	0.21[a]
TROPIC	whether a visit included a psychotropic drug (TROPIC = 1) or not (TROPIC = 0)	0.27[a]
FEMALE	visit made by female patient	0.63
NONWHITE	visit made by nonwhite patient	0.09
AGE 14	patient age 14 years	0.06
AGE14-24	patient age between 14-24 years	0.09
AGE45-64	patient age between 45-64 years	0.30
AGE 65	patient age 65 or older	0.16
NEWPT	new patient	0.11
NEWPROB	old patient with new problem	0.13
ANXIETY	patient's reason for visit (RFV) is anxiety	0.10
CONFUS	patient's RFV is confusion	0.01
DEPRESS	patient's RFV is depression	0.10
BEHAVE	patient's RFV is a behavioral disturbance (e.g., anti-social, hostile or hysterical behavior)	0.02
SLEEPDIS	patient's RFV is disturbances of sleep	0.02
ALCDRUGS	patient's RFV is an alcohol or drug-related problem	0.01
OTHPSYCH	patient's RFV is any other psychological disorder or problem	0.05
SEXPROB	patient's RFV is a sex problem	0.01
PSYCHO	patient's RFV is psychotherapy	0.03
ANGER	patient's RFV is anger	0.01
FEAR	patient's RFV is fear or phobia	0.01
HEADDIZ	patient's RFV is headaches or dizziness	0.06
MEDPROG	patient's RFV is for medication or a progress visit	0.03
HEARTSX	patient's RFV is a heart symptom, e.g., heart pain, palpitations	0.02
RESPIRSX	patient's RFV is a respiratory symptom	0.03
ABDOMSX	patient's RFV is an abdominal problem	0.05
MUSCULO	patient's RFV is musculoskeletal complaint, e.g., neck, back, or hip problem	0.05
SOCCOUN	patient's RFV is to seek social counselling	0.06

TABLE 13 CONT.

VARIABLE MEANS AND DEFINITIONS

MEDCOUN	patient's RFV is to seek medical counselling	0.01
GEXAM	patient's RFV is a general exam	0.04
PREGEXAM	patient's RFV is a pregnancy or prenatal exam	0.01
NONPSYCH	patient's RFV is none of the above, and non-psychological in nature	0.18
FEMDOC	visit provided by a female physician	0.07
YOUNGDOC	visit provided by a physician under 40 years of age	0.22
OLDDOC	visit provided by a physician over 60 years of age	0.15
CERTIF	visit provided by a board-certified physician	0.60
IM	visit provided by an internist	0.18
GS	visit provided by a general surgeon	0.02
PED	visit provided by a pediatrician	0.04
OB	visit provided by an obstetrician-gynecologist	0.05
MEDSPEC	visit provided by a medical specialist	0.07
SURGSPEC	visit provided by a surgical specialist	0.04
DXDEPRESS	diagnoses of depression	0.20
DXNEUROT	diagnoses of neurosis	0.21
DXSCHIZ	diagnoses of schizophrenia	0.04
DXPSYCHOS	diagnoses of psychosis	0.03
DXPERSDIS	diagnoses of personality disorder	0.06
DXADJREACT	diagnoses of adjustment reactions	0.02
DXALCDRUG	diagnoses of alcohol or drug dependence	0.14
DXPSYCHAL	diagnosis of psychalgia	0.03
PSYCHDX	any other psychiatric diagnosis	0.05
PSYCHRVF	reason for visit is psychological in nature	0.32
NE	visit provided in the Northeast	0.27
NC	visit provided in North Central	0.20
SOUTH	visit provided in South	0.33
RURAL	visit provided in a non-SMSA	0.18

[a]Predicted probability based on probit regression equation.

definitions of the RFV variables.) Patients coming in with "general symptoms," e.g., chills, fever, exhaustion, etc., constitute the omitted category.*

Geographic Location: Three regional dummies, Northeast (NE), North Central (NC), and South (SOUTH) have been included in our equation to capture regional location, while a RURAL variable has been included to capture non-SMSA visits. Visit provided in the West, and in urban areas, remain in the intercept.

Estimation Method

With a qualitative, zero-one, dependent variable, ordinary least squares (OLS) are inefficient because of the concentration of values at the two extremes. Multivariate probit analysis is preferred instead because it constrains the predicted values of the dependent variable to the unit (0,1) interval (Goldberger, 1964).

Regression Results

Table 14 presents the probit regression results for the probability of seeing a psychiatrist.** Because the maximum likelihood estimates obtained from probit regression analysis are not directly interpretable, marginal effects for the statistically significant variables are also provided. (Marginal impacts are derived from the cumulative normal distribution table.) These marginal impacts, on which this discussion will focus, give the absolute change in the probability of visiting a psychiatrist associated with positive values of the independent variables. Thus, being female lowers the probability of seeing a psychiatrist by 2.2 percentage points (relative to a predicted probability of 21%).

Table 14 confirms that patient demographics do indeed play a large role in determining whether or not a patient will visit a psychiatrist for mental

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*More specifically, any visit with an RFV code S005.0-S095.0 from the NCHS "Reason For Visit Classification For Ambulatory Care" schema is in this group.

**Although there is no empirical way to measure the "success" of a particular specification in explaining variation with a probit regression, we do have reason to believe that our equation does quite well. Results of an identical OLS regression, while not directly comparable, did yield a surprisingly high R^2 of 0.59.

TABLE 14.

PROBIT REGRESSION RESULTS - PROBABILITY OF SEEING A PSYCHIATRIST VS. ANOTHER PHYSICIAN

Variable	Regression Coefficient	Marginal Effect
FEMALE	-0.0776***	-2.2
NONWHITE	-0.7386***	-15.9
AGE < 14	-0.4768***	-11.3
AGE14-24	-0.0179	n.s.
AGE45-64	-0.4830***	-12.7
AGE > 65	-1.2414***	-24.0
NEWPT	-0.4918***	-11.9
NEWPROB	-1.8960***	-28.1
ANXIETY	1.3955***	50.0
CONFUS	1.3627***	50.0
DEPRESS	1.8620***	64.7
BEHAVE	2.2038***	71.4
SLEEPDIS	1.1518***	42.3
ALCDRUGS	0.3759*	12.6
OTHPSYCH	2.0543***	69.0
SEXPROB	1.2408***	46.8
PSYCHO	3.2421***	80.9
ANGER	4.3830**	83.2
FEAR	2.0039***	67.6
HEADDIZ	-0.3350**	-8.5
MEDPROG	0.9081***	33.1
HEARTSX	-0.9291***	-17.3
RESPIRSX	0.7234***	-15.0
ABDOMSX	0.2970*	-7.6
MUSCULO	-0.2680	n.s.
SOCCOUN	2.5467***	80.1
MEDCOUN	0.0511	n.s.
GEXAM	-0.4481**	-10.7
PREGEXAM	-2.7451*	-22.1
NONPSYCH	-0.3113***	-8.2

TABLE 14 CONT.

PROBIT REGRESSION RESULTS - PROBABILITY OF SEEING A PSYCHIATRIST VS. ANOTHER PHYSICIAN

NE	0.0738	n.s.
NC	-0.3267***	-8.6
SOUTH	-0.0661	n.s.
RURAL	-0.8895***	-19.7
Constant	-0.4284*	--

*** Significant at the one percent level.
** Significant at the five percent level.
* Significant at the ten percent level.
n.s. Variable not significant.

health care. Other things constant, being nonwhite, a child, over the age of forty-five, or even female significantly reduces one's chances of seeing a psychiatrist. The probability that a minority patient will receive psychiatric care, for instance, is 15.9 percentage points lower than that for a white person with otherwise similar characteristics. Even more dramatic is the difference associated with being elderly: whereas the average mental health patient has a one in four chance of visiting a psychiatrist, the comparable estimate for an elderly person is less than one in twenty! As suggested earlier, however, this may be as much the choice of the elderly patient as of the psychiatrist. Until further analysis is done, we cannot determine whether the elderly's attitudes keep them from seeking specialized mental health care or whether older Americans face significant access barriers to private practice psychiatrists. Most likely, both factors contribute to the notable absence of older persons in private psychiatrists' offices.

As hypothesized, patients visiting the physician for the first time (NEWPT), or with a new problem (NEWPROB), are significantly more likely to see a general medical physician than a psychiatrist. A patient's reason for visit also has a tremendous influence on the likelihood of seeing a psychiatrist. Patients with a "psychological" complaint or symptom were indeed more likely to receive care from a psychiatrist than from another kind of physician. RFVs raising the probability of seeing a psychiatrist the most (relative to "general symptoms") included anxiety, confusion, depression, behavioral disturbances, sleep disturbances, psychotherapy, anger, fear, and social counselling. RFVs associated with visits to non-psychiatrists, by contrast, included headaches and dizziness; heart, respiratory and abdominal symptoms; general exams, pregnancy and prenatal exams; and other non-psychological RFVs -- in short, the more "medical" problems.

Finally, we find that geographic location <u>does</u> affect the probability of visiting a psychiatrist, even after other factors are held constant. Most notably, living in a rural area reduces the likelihood of seeing a psychiatrist by almost 20 percentage points compared with an urban residence. Residents of the North Central region are also significantly less likely to receive specialized psychiatric care than patients living in other parts of the country (a difference of 8.6 percentage points). There were no differences associated with living in the South, however, once race and other patient characteristics were held constant.

4.2 Probability of Receiving a Psychotropic Drug

We learned from Section 3.8 that general medical physicians actually order psychotropic drugs in a greater proportion of their mental health visits than psychiatrists do (45% vs. 31%). Yet we also know that psychiatrists frequently see the same patient over and over again, reducing the likelihood that any given visit will involve a drug. Thus, it is possible that this differential is a function of physicians' visit patterns rather than of their drug prescribing practices per se. In this section, we use regression analysis to estimate the probability that a visit will involve a psychotropic drug, holding confounding factors, such as visit status (i.e., old/new patient) constant.

Empirical Specification and Estimation

The probability that a psychotropic drug will be prescribed during a mental health visit is hypothesized to depend on a range of factors, including patient demographics, visit status, diagnosis, geographic location, and the characteristics of the prescribing physician. Because a number of these explanatory variables have already been described in the preceding section, the reader is referred back for further detail if necessary. Variable definitions and means are shown in Table 13 above.

Dependent Variable: The dependent variable for this analysis, TROPIC, is equal to one if any psychotropic drug was prescribed during a mental health visit, and zero otherwise.*

Independent Variables - Patient Demographics: To account for the possibility that patient demographics affect physicians' drug prescribing practices, we include patient age, sex, and race in the regression, defined as before. In particular, we expect female patients to have a greater chance of receiving psychotropic drugs than their male counterparts, based on findings from other studies (Parry, et al., 1973; Kramer, et al., 1981). Younger patients are also hypothesized to receive fewer drug orders (Parry, et al., 1973).

*As in Section 3.8, a psychotropic drug is defined as any antianxiety drug, antidepressant, antipsychotic or any other psychotherapeutic agent. Sedatives and hypnotics are not included in this definition because they are prescribed for many purposes other than to achieve a psychotherapeutic effect.

Visit Status: New patients (NEWPT), and possibly old patients with new problems (NEWPROB), may be less likely to receive psychotropic drug prescriptions if physicians are more cautious when treating an unfamiliar patient or problem. Preliminary descriptive analysis of the NAMCS drug data by Koch and Campbell (1983) suggests that this is, in fact, the case, though to our knowledge, no multivariate test of this hypothesis has been performed.

Diagnosis: There is little doubt that diagnosis influences the probability of getting a psychotropic drug. Nine diagnostic dummy variables are included to capture the relationship between particular psychiatric diagnoses and the likelihood of receiving a drug prescription. Specifically, a dichotomous (0,1) variable is specified to indicate the presence (=1) or absence (=0) of each of the following diagnoses (primary or secondary): depression, neurosis, schizophrenia, psychosis, personality disorders, adjustment reactions, alcohol or drug dependence, and psychalgia. (See Table 13 for precise variable names; the ICD-9 codes for each variable are shown in Table 6.) An "all other psychiatric diagnoses" category is also included. Non-psychiatric diagnoses are in the intercept.

In addition to our diagnostic dummies, we have included a variable indicating whether the patient reported a psychological symptom or complaint as their primary reason for visit (PSYCHRFV). PSYCHRFV is set equal to one if the RFV was psychological, and zero otherwise.*

Physician Characteristics: Because a physician's background and training may affect his or her propensity to prescribe a psychotropic drug, it is important to isolate the role of specialty training on physicians' drug prescribing practices. In this effort, physician specialty is specified as seven dummy variables: internal medicine (IM), general surgery (GS), pediatrics (PED), obstetrics-gynecology (OB), the medical subspecialties (MEDSPEC), the surgical

*The high degree of multicollinearity between diagnosis and RFV precluded the specification of this RFV variable in further detail. Because we believe the physician's assessment of a patient's problem (i.e., diagnosis) will have a greater effect on the probability of prescribing a psychotropic drug than the patient's assessment, we chose to include detailed diagnostic, rather than RFV, categories.

subspecialties (SURGSPEC), and psychiatry (PSY). General and family practitioners represent the omitted category.*

In addition to specialty training, whether a physician is board-certified (CERTIF), female (FEMDOC), older (OLDDOC), or younger (YOUNGDOC) than the average physician may also affect the propensity to prescribe a psychotropic drug. CERTIF and FEMALE each take on the value one if a physician is board-certified and/or female, respectively. Physician age is specified similarly, with YOUNGDOC equal to one if the physician is under forty, and OLDDOC equal to one if (s)he is over sixty years of age. (Physicians between the ages of forty and sixty remain in the intercept.)

Geographic Location: To the extent that physician density alters the probability that drug therapy will be substituted for more time-intensive types of therapy (e.g., psychotherapy), we may observe geographic variation in physicians' drug prescribing practices. At the same time, regional differences in physicians' attitudes towards the use of psychotropic agents may influence the frequency with which they prescribe drugs. Three regional dummies (NE, NC and SOUTH) and an urban/rural dummy (RURAL=1) have been included in the regression to control for the potential effects of location.

Estimation Methods

For reasons discussed above (see Section 4.1), the appropriate estimation technique for this model is multivariate probit analysis.

Regression Results

Table 15 presents the probit regression results analyzing the probability that a mental health visit will involve a psychotropic drug. As in the preceding table, marginal effects are provided for the statistically significant variables. To remind the reader, variables with a positive coefficient (and hence, marginal effect) can be interpreted as raising the probability that a visit will involve a psychotropic drug, while negative coefficients imply a lower probability of a psychotropic drug prescription.

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*Because FPs were initially identified through their specialty board, they could not be included separately in the same regression with a board-certification variable (due to perfect collinearity). After determining that GPs and FPs were equally likely to prescribe a psychotropic drug, we decided to combine the two in favor of keeping the board certification variable.

TABLE 15.

PROBIT REGRESSION RESULTS - PROBABILITY OF RECEIVING A PSYCHOTROPIC DRUG PRESCRIPTION

Variable	Regression Coefficient	Marginal Effect
FEMALE	0.1272***	4.2
NONWHITE	0.0603	n.s.
AGE<14	-0.8652***	-20.9
AGE14-24	-0.3437***	-10.3
AGE45-64	0.2718***	9.2
AGE>65	0.2690***	9.3
NEWPT	-0.2364***	-7.3
NEWPROB	-0.0338	n.s.
GS	0.0273	n.s.
IM	-0.0771	n.s.
PED	-0.2658	n.s.
OB	-0.5455***	-15.0
MEDSPEC	-0.1279	n.s.
SURGSPEC	-0.1791	n.s.
PSYCH	-0.4901***	-15.2
YOUNGDOC	-0.0235	n.s.
OLDDOC	-0.0341	n.s.
CERTIF	-0.1106***	-3.7
FEMDOC	0.0357	n.s.
DXDEPRESS	1.1690***	42.7
DXNEUROT	0.9110***	33.2
DXPSYCHOS	1.8036***	62.1
DXSCHIZ	2.0577***	67.0
DXPERSDIS	0.3843***	13.8
DXADJREACT	-0.4191**	12.0
DXPSYCHAL	0.2072	n.s.
DXALCDRUG	0.4589***	16.4
PSYCHDX	0.5784***	21.4
PSYCHRVF	0.2652***	9.0

TABLE 15 CONT.

PROBIT REGRESSION RESULTS - PROBABILITY OF RECEIVING A PSYCHOTROPIC DRUG PRESCRIPTION

NE	0.2285***	7.8
NC	0.2038***	7.0
SOUTH	0.3285***	11.2
RURAL	0.1796***	6.1
Constant	-1.4302***	--

*** Significant at the one percent level.
** Significant at the five percent level.
* Significant at the ten percent level.
n.s. Variable not significant.

Both patient age and sex have a significant effect on the likelihood that a mental health visit will result in a psychotropic drug prescription. Consistent with the literature, female patients are more likely to receive a psychotropic drug than their male peers, even after other factors, including casemix, have been held constant. A female patient visiting her physician for mental health care has a 28 percent chance of receiving a psychotropic drug prescription, compared with a 24 percent chance for a virtually identical male patient.

According to Table 15, the probability of receiving a psychotropic agent during a mental health encounter is positively related to patient age. Children (AGE 14) have by far the smallest chance of getting a psychotropic drug, while those age 45 or older have the greatest likelihood.

Visiting a physician for the first time (NEWPT) significantly reduces one's chances of getting a psychotropic drug, by 7.3 percentage points, on average. There is no difference associated with being a regular patient with a new problem (NEWPROB), however.

Even after confounding factors, like visit status, diagnosis and patient demographics are held constant, psychiatrists are significantly less likely to order psychotropic drugs during a mental health visit than other physicians. Whereas the average physician prescribes a psychotropic drug to approximately one out of three office patients, the comparable figure for psychiatrists (PSYCH) is less than one out of five (a difference of over 15 percentage points).* The fact that none of the other specialty dummies except OB were significantly different from zero suggests there were no real differences in the drug prescribing practices of these physician specialties and general/family practitioners (in the intercept). Visiting an OB-GYN does lower the probability of getting a psychotropic drug, however, by 15 percentage points, ceteris paribus. One explanation for this finding is that OB-GYNs are mostly providing therapeutic listening to their mental health patients, many of whom are receiving prenatal care and for whom drug therapy would clearly be contraindicated.

Of the remaining physician characteristics included in the regression (age, gender, and whether the physician was board-certified), only board-certification (CERTIF) was significantly related to the probability

*To test for the possibility that our psychiatric diagnoses and PSYCHPFV variables were capturing the effect of being a psychiatrist, we ran the regression dropping these dummies. Even without these variables, the PSYCH coefficient remained negative and significant (though not as large), confirming that this result is not attributable to multicollinearity.

a visit will involve a psychotropic drug. Other things constant, board-certified physicians are slightly less likely to prescribe psychotropic drugs to office patients than their non-board-certified colleagues. (Benson (1983) reported similar results for Southern psychiatrists.)

Not surprisingly, diagnosis has a tremendous influence on whether or not a psychotropic drug is ordered. Diagnoses increasing the likelihood of a drug prescription the most included schizophrenia, psychosis, depression and neurosis. Personality disorders, alcohol and drug problems (DXALCDRUG), and "other psychiatric diagnoses" (PSYCHDX) also had a positive effect, but not nearly as large an influence. The only diagnosis proving insignificant in the equation was psychalgia (DXPSYCHAL), or psychogenic pain. (Recall that non-psychiatric diagnoses, accounting for about one-quarter of mental health visits in this study, represent the omitted category.)

Patients visiting the physician with a "psychological" complaint or problem (PSYCHRFV) are more likely to receive psychotropic drugs, as hypothesized. Relative to visits involving chiefly physical complaints, having a PSYCHRFV increases the probability of a psychotropic drug prescription by 9 percentage points, ceteris paribus.

Finally, one's chances of receiving a psychotropic drug prescription during a mental health visit do vary with geographic location. The probability a visit will result in a psychotropic drug order is highest in the South, and lowest in the West (in the intercept).* Living in a non-SMSA also raises the likelihood that a drug will be prescribed, by 6 percentage points, on average.

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*While not directly comparable, a national study of psychotherapeutic drug usage by Parry et al. (1973) found drug utilization to be highest in the West and lowest in the Northeast. This effort was based on a survey of American adults, however, and not on mental health visits.

5.0 CONCLUSIONS

5.1 Summary of Findings

Using data from the National Ambulatory Medical Care Survey, we examined the role of non-psychiatrist physicians in the provision of mental health care. Mental health services were defined as visits involving either (1) "psychotherapy/therapeutic listening" services, or (2) a primary or secondary diagnosis of a mental disorder. Based on this definition, nearly half of the mental health visits provided by private practice, office-based physicians during 1980-1981 were furnished by non-psychiatrist physicians, mostly in the primary care specialties.

Non-psychiatrist physicians appear to be part of a hidden mental health network, providing services to patients who cannot (or need not) obtain specialized care. They are not acting as gatekeepers to formal psychiatric services, as only 5 percent of their patients were referred elsewhere for care. Who are the patients being treated by non-psychiatrist physicians? For one, they are less seriously ill than patients seen by psychiatrists (e.g., they tend to suffer from neurotic disorders rather than psychoses), and they are more likely to have physical presenting symptoms. These patients are also significantly more likely to be female, to be elderly (65 years or more), and to be nonwhite. While the average white patient has a one in four chance of seeing a psychiatrist, the probability for an otherwise similar nonwhite patient is only one in ten. Limited access to formal psychiatric care for the nonwhite and elderly may reflect financial barriers as well as a preference by psychiatrists for a more affluent or better educated clientele. (These patient characteristics are at least partly proxies for insurance coverage, income, and education.) Finally, patients are apt to seek mental health care from non-psychiatrist physicians in those areas with relatively fewer psychiatrists: in the North Central region of the country and in rural areas. (Apparent low utilization of psychiatrists in the South disappears, once patient race is held constant.)

Either because of their training or their location in physician-shortage areas, non-psychiatrist physicians appear to substitute drugs for time in their treatment of mental disorders. Their visits last less than half as long as those of psychiatrists (20 vs. 44 minutes), and are twice as likely to include a drug prescription. Of course, these physicians are treating physical, as well as psychological, problems, which partially explains their higher drug utilization rate. Even so, non-psychiatrist physicians (except

OB-GYNs) are significantly more likely to order psychotropic drugs, even holding diagnosis and other patient characteristics constant. Since non-psychiatrists receive relatively little training in psychopharmacology, what does this imply for quality of care? We can not assess appropriateness of drug use from this study, but two points are reassuring. First, non-psychiatrists are less likely to prescribe combination drugs (i.e. two or more psychotropic medications simultaneously). Second, they are less likely than psychiatrists to order major tranquilizers, such as antipsychotics, or the more serious and potentially dangerous antidepressants, like Lithium and MAO inhibitors.

5.2 Policy Implications

Non-psychiatrist physicians appear to constitute an important source of care for those individuals who fall outside the formal psychiatric system. Their patients are more likely to be nonwhite or elderly, two groups not commonly found in the offices of private psychiatrists. They are also more likely to be located in those parts of the country with relatively fewer psychiatrists. These findings strongly suggest that non-psychiatrist physicians can help offset the projected shortfall of mental health manpower. The policy question remains, however, of whether this is a desirable solution.

First, this hidden mental health network serves the less well-off in our society, raising concern over equity of access to specialized psychiatric care. Second, the appropriateness of GPs, internists, and other physicians as mental health providers needs to be evaluated. General medical training does not emphasize the detection and accurate diagnosis of mental illness or the appropriate treatment modalities. Although non-psychiatrist physicians do appear to avoid the most dangerous psychotropic drugs, they are still more likely to order one in the first place. Further research would clearly seem necessary in this area, before policymakers decide whether to take non-psychiatrist physicians into account when designating mental health shortage areas.

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